

### 3.3.8.16 Submergent Aquatic-Oligotrophic Marsh

#### 3.3.8.16.1 Community Overview

This herbaceous community of aquatic macrophytes is a variant of the submergent aquatic community. It represents a distinctive assemblage of highly specialized submersed, rosette-forming aquatic macrophytes that occur in northern Wisconsin in clear, deep, circumneutral lakes with extremely soft water. Bottom materials are usually sand, or occasionally gravel, and there is often an abrupt transition from submergent marsh to a forested upland shore. The aquatic plants grow at depths that range from the shallows at the beach line, to several meters. Characteristic species include American shore-grass, pipewort, yellow hedge-hyssop, aquatic lobelia, a milfoil (*Myriophyllum tenellum*), brown-fruit rush, and quillworts.

#### 3.3.8.16.2 Vertebrate Species of Greatest Conservation Need Associated with Submergent Aquatic-Oligotrophic marsh

Seven vertebrate Species of Greatest Conservation Need were identified as moderately or significantly associated with submergent aquatic-oligotrophic marsh (Table 3-213).

**Table 3-213. Vertebrate Species of Greatest Conservation Need that are (or historically were) moderately or significantly associated with submergent aquatic-oligotrophic marsh communities.**

<b><i>Species Significantly Associated with Submergent Aquatic-Oligotrophic Marsh</i></b>	
<b>Herptiles</b>	
Blanding's Turtle	
<b>Mammals</b>	
Moose	
<b><i>Species Moderately Associated with Submergent Aquatic-Oligotrophic Marsh</i></b>	
<b>Herptiles</b>	
Mink Frog	
<b>Mammals</b>	
Northern Long-Eared Bat	
Silver-Haired Bat	
Eastern Red Bat	
Hoary Bat	


In order to provide a framework for decision-makers to set priorities for conservation actions, the species identified in Table 3-213 were subject to further analysis. The additional analysis identified the best opportunities, by Ecological Landscape, for protection, restoration, and/or management of both submergent aquatic-oligotrophic marsh and associated vertebrate Species of Greatest Conservation Need. The steps of this analysis were:


- Each species was examined relative to its probability of occurrence in each of the 16 Ecological Landscapes in Wisconsin. This information was then cross-referenced with the opportunity for protection, restoration, and/or management of submergent aquatic-oligotrophic marsh in each of the Ecological Landscapes (Tables 3-214 and 3-215).


**Table 3-214. Vertebrate Species of Greatest Conservation Need that are (or historically were) *significantly* associated with submergent aquatic-oligotrophic marsh communities and their association with Ecological Landscapes that support submergent aquatic-oligotrophic marsh.**

Submergent Aquatic - Oligotrophic Marsh		Herptiles (1)*	Mammals (1)
Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type		Blanding's Turtle	Moose
<b>MAJOR</b>			
Northern Highland			
<b>PRESENT (MINOR)</b>			
Northwest Sands			

**Color Key**

 = HIGH probability the species occurs in this Ecological Landscape

 = MODERATE probability the species occurs in this Ecological Landscape

 = LOW or NO probability the species occurs in this Ecological Landscape




\* The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.

**Table 3-215. Vertebrate Species of Greatest Conservation Need that are (or historically were) *moderately* associated with submergent aquatic-oligotrophic marsh communities and their association with Ecological Landscapes that support submergent aquatic-oligotrophic marsh.**

Submergent Aquatic Oligotrophic Marsh	Herptiles (1)*		Mammals (4)		
	Mink Frog	Northern Long-eared Bat	Silver-haired Bat	Eastern Red Bat	Hoary Bat
Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type					
<b>MAJOR</b>					
Northern Highland					
<b>PRESENT (MINOR)</b>					
Northwest Sands					

\* The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.

**Color Key**

-  = HIGH probability the species occurs in this Ecological Landscape
-  = MODERATE probability the species occurs in this Ecological Landscape
-  = LOW or NO probability the species occurs in this Ecological Landscape

### **3.3.8.16.3 Threats and Priority Conservation Actions for Submergent Aquatic-Oligotrophic Marsh**

#### **3.3.8.16.3.1 Statewide Overview of Threats and Priority Conservation Actions for Submergent Aquatic-Oligotrophic Marsh**

The following list of threats and priority conservation actions were identified for submergent aquatic-oligotrophic marsh in Wisconsin. The threats and priority conservation actions described below apply to all of the Ecological Landscapes in Section 3.3.8.16.3.2 unless otherwise indicated.

##### Threats and Issues

- Disturbance of bottom sediments from recreational powerboats can cause turbidity and physically damage the aquatic beds.
- Shoreline development can alter macrophyte habitat, introduce pollutants, and increase erosion. Sedimentation, eutrophication, and pollution of water can cause detrimental changes to community composition, structure, and function.
- Mercury and acidification are serious issues in some northern Ecological Landscapes.
- Weed removal and use of pesticides damages habitat and may encourage invasives. Invasive plants can replace native plants and dominate aquatic communities.
- The prevalence of carp in the waterbodies of several Ecological Landscapes contributes to destruction and degradation of aquatic vegetation and aquatic habitats.
- The placement of shoreline structures such as piers, boat lifts, and ramps can reduce the amount of nearshore submergent aquatic habitats that are beneficial to fish, invertebrates, and many wildlife species.
- Dam management and other water-level manipulation activities can affect the amount and composition of this community type.

##### Priority Conservation Actions

- Protect aquatic vegetation by working with conservation managers and private interest groups. Lake associations, lake management districts and Land Conservation Departments play a key role in supporting education regarding this community and protection of this community type.
- Work with lake management districts, lake associations, and the WDNR exotics team to identify priority research needs and develop strategies to minimize invasive species impacts that are present within or likely to affect a particular Ecological Landscape's waterbodies.
- Where feasible, this community type should be managed as part of a complex of other upland and wetland vegetation types.
- Restore wild rice, a submergent aquatic in its early life stages, where appropriate.
- Create no-wake zones where needed if possible.
- Buffer uplands and manage shorelines to prevent erosion and sedimentation, and limit pollutant inputs.
- Encourage local communities to accept Smart Growth plans by demonstrating benefits.
- Restore shorelines where possible.
- Maintain natural hydrologic processes. Manage dams and impoundments to protect sensitive species (e.g., wintering amphibians or reptiles). Avoid artificially prolonged stable water levels that will reduce the diversity of the community over time.
- Study hydrologic cycles and gather information on water quality and fluctuations that are beneficial to this community type.
- Continue and support research to find biocontrols for invasives; control spread of new invasives.

### **3.3.8.16.3.2 Additional Considerations for Submergent Aquatic-Oligotrophic Marsh by Ecological Landscape**

Special considerations have been identified for those Ecological Landscapes where major or important opportunities for protection, restoration, and/or management of submergent aquatic-oligotrophic marsh exist. Those considerations are described below and are in addition to the statewide threats and priority conservation actions for submergent aquatic-oligotrophic marsh found in Section 3.3.8.16.3.1.

#### Additional Considerations for Submergent Aquatic-Oligotrophic Marsh in Ecological Landscapes with **Major** Opportunities for Protection, Restoration, and/or Management

##### *Northern Highland*

This Ecological Landscape contains numerous lakes that have the appropriate water chemistry, bottom types, and shoreline characteristics to support the *oligotrophic marsh* type. Composition consists of unusual assemblages of macrophytes, which exist as dense carpets of sterile rosettes on the lake bottom. Lakes of this type are poorly buffered by carbonate materials and are highly vulnerable to negative impacts such as acidification from air pollution. Development pressures are very high in this Ecological Landscape and there is a need to protect undeveloped shorelines in the near future.